

**What is claimed is:**

1. An isolated polynucleotide, comprising a nucleotide sequence that has at least 70% identity to SEQ ID NO:1, said identity being calculated over the entire length of SEQ ID NO:1.
2. The polynucleotide of claim 1, comprising the nucleotide sequence of SEQ ID NO:1.
3. An vector comprising a polynucleotide, wherein said polynucleotide encodes an HGFIN polypeptide.
4. The vector of claim 3, wherein the HGFIN polypeptide further comprises the amino acid sequence of SEQ ID NO:2.
5. A host cell comprising the vector of claim 3.
6. The cell of claim 5, wherein the cell is selected from the group consisting of CHO, COS, HeLa, C127, 3T3, BHK, HEK 293 and Bowes melanoma cells.
7. A process for producing an HGFIN polypeptide comprising culturing a host of claim 5 under conditions sufficient for the production of said polypeptide and recovering the polypeptide from the culture.
8. A process for producing a cell which produces an HGFIN polypeptide comprising transforming, transducing or transfecting a host cell with the vector of claim 3 such that the host cell, under appropriate culture conditions, produces an HGFIN polypeptide.

9. The process of claim 8, wherein the cell is a bone marrow derived cell removed from the body of a subject.
10. The cell of claim 9, selected from the group consisting of stem cells, progenitor cells, leukocytes, B-cells, T-cells, erythrocytes, platelets, neutrophils, monocytes, macrophages, granulocytes, eosinophils, basophils, blast cells and mast cells.
11. An isolated, purified HGFIN polypeptide.
12. The polypeptide of claim 11, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO:2.
13. An antibody immunospecific for the HGFIN polypeptide of claim 11.
14. The polypeptide of claim 11, further comprising an amino acid sequence that has at least 70% identity to SEQ ID NO:2, said identity being calculated over the entire length of SEQ ID NO:2.
15. A polynucleotide sequence comprising an antisense sequence to a nucleotide sequence encoding a HGFIN polypeptide.
16. The polynucleotide sequence of claim 15, wherein nucleotide sequence encoding the HGFIN polypeptide is SEQ ID NO:1.
17. The polynucleotide sequence of claim 16, wherein the nucleotide sequence has at least 70% identity to the antisense polynucleotide sequence of claim 16, said identity being calculated over the entire length of the sequence.
18. A vector comprising the polynucleotide sequence of claim 16, wherein said vector is capable of inhibiting the expression of an HGFIN polypeptide when said vector is present in a compatible host cell.
19. A host cell comprising the vector of claim 18.

20. The cell of claim 19, wherein the cell is selected from the group consisting of CHO, COS, HeLa, C127, 3T3, BHK, HEK 293 and Bowes melanoma cells.
21. A pharmaceutical composition comprising a biologically effective amount of a HGFIN polynucleotide and an acceptable carrier.
22. The composition of claim 21, wherein the HGFIN polynucleotide sequence is substantially similar to SEQ ID NO: 1.
23. The composition of claim 21, wherein the HGFIN polynucleotide sequence is an antisense sequence to SEQ ID NO: 1
24. A pharmaceutical composition comprising a biologically effective amount of a HGFIN polypeptide and an acceptable carrier.
25. The composition of claim 24, wherein the HGFIN polypeptide sequence is substantially similar to SEQ ID NO: 2.
26. A pharmaceutical composition comprising a biologically effective amount of an antibody immunospecific for the HGFIN polypeptide comprising the amino acid sequence of SEQ ID NO:2, and an acceptable carrier.
27. A method of treating a disease associated with abnormal bone marrow cell differentiation or proliferation comprising the administration of a pharmaceutical composition comprising a biologically effective amount of a HGFIN polynucleotide and an acceptable carrier.
28. The method of claim 27, wherein the disease is selected from the group consisting of acute myeloid leukemia, acute lymphocytic leukemia, chronic myeloid leukemia, chronic lymphocytic leukemia, Hodgkin's and non-Hodgkin's disease.

29. A method of treating a disease associated with abnormal bone marrow cell differentiation or proliferation comprising the administration of a pharmaceutical composition comprising a biologically effective amount of a HGFIN polypeptide and an acceptable carrier.
30. The method of claim 29, wherein the disease is selected from the group consisting of acute myeloid leukemia, acute lymphocytic leukemia, chronic myeloid leukemia, chronic lymphocytic leukemia, Hodgkin's and non-Hodgkin's disease.
31. A method of treating a disease associated with abnormal bone marrow cell differentiation or proliferation comprising the administration of a pharmaceutical composition comprising a biologically effective amount of a polynucleotide coding for the antisense sequence to SEQ. ID. No. 2, and an acceptable carrier.
32. The method of claim 31, wherein the disease is selected from the group consisting of: acute myeloid leukemia, acute lymphocytic leukemia, chronic myeloid leukemia, chronic lymphocytic leukemia, Hodgkin's and non-Hodgkin's disease.
33. A method of treating a disease associated with abnormal bone marrow cell differentiation or proliferation comprising the administration of a pharmaceutical composition comprising a biologically effective amount of an antibody immunospecific for the HGFIN polypeptide comprising the amino acid sequence of SEQ ID NO:2, and an acceptable carrier.
34. A vector for the delivery of an HFGIN therapeutic to a cell for the treatment leukemia or lymphoma, wherein the vector comprises an expression cassette encoding the HFGIN therapeutic.

35. The vector of claim 34, wherein the HGFN therapeutic is selected from the group consisting of an HGFN polynucleotide, an HGFN polynucleotide antisense sequence, a HGFN protein, and an antibody immunospecific to the HGFN protein.
36. The vector of claim 34 wherein the vector is selected from the group consisting of: retrovirus, lentivirus, adenovirus, herpes simplex virus (HSV), cytomegalovirus (CMV), and adeno-associated virus (AAV).
37. A method for introducing an HGFN therapeutic into a cell, comprising transducing the cell with the vector of claim 36.
38. The method of claim 37, wherein the transduction occurs in vivo.
39. The method of claim 37, wherein the transduction occurs ex vivo.
40. The method of claim 37, wherein the cell is a bone marrow derived cell.
41. The cell of claim 40, wherein the cell is selected from the group consisting of stem cells, progenitor cells, leukocytes, B-cells, T-cells, erythrocytes, platelets, neutrophils, monocytes, macrophages, granulocytes, eosinophils, basophils, blast cells and mast cells.
42. A method for introducing an HGFN therapeutic into a cell, comprising transfecting the cell with a plasmid comprising an expression cassette encoding the HGFN therapeutic.
43. The method of claim 42, wherein the HGFN therapeutic is selected from the group consisting of an HGFN polynucleotide, an HGFN polynucleotide antisense sequence, a HGFN protein and an antibody immunospecific to the HGFN protein.

44. The methods of claim 42, wherein said transfection is carried out by a procedure selected from the group consisting of calcium phosphate transfection, DEAE-dextran mediated transfection, transvection, microinjection, cationic lipid-mediated transfection, electroporation, scrape loading, ballistic introduction or infection, use of a gene gun, and lyposome transfection.
45. The method of claim 42, wherein the transfection occurs in vivo.
46. The method of claim 42, wherein the transfection occurs in vitro.
47. The method of claim 42, wherein the cell is a bone marrow derived cell.
48. The cell of claim 42, wherein the cell is selected from the group consisting of stem cells, progenitor cells, leukocytes, B-cells, T-cells, erythrocytes, platelets, neutrophils, monocytes, macrophages, granulocytes, eosinophils, basophils, blast cells and mast cells.
49. The method of claim 42, wherein the transfection takes place as part of an ex vivo procedure.
50. A method of treating a lymphoproliferative disease, comprising administering a biologically effective amount of a composition comprising:
  - (a) a compound of the general formula  $\alpha$ -HGFN-C, wherein  $\alpha$  is one or more moieties that specifically binds to a HGFN protein, HGFN is one or more HGFN related genetic sequences, and C is one or more toxic moieties; and
  - (b) a pharmaceutically acceptable carrier.
51. The method of claim 50, wherein the lymphoproliferative disease is selected from the group consisting of: acute myeloid leukemia, acute lymphocytic leukemia,

chronic myeloid leukemia, chronic lymphocytic leukemia, Hodgkin's and non-Hodgkin's disease.

52. The method of claim 50, wherein  $\alpha$  is selected from the group consisting of an antibody and an antibody fragment.
53. The method of claim 52, wherein the antibody is selected from the group consisting of: monoclonal antibodies, polyclonal antibodies, humanized antibodies, recombinant antibodies, chemically modified antibodies, and synthetic antibody analogs.
54. The method of claim 52 wherein the antibody fragment is selected from the group consisting of fragments of: monoclonal antibodies, polyclonal antibodies, humanized antibodies, recombinant antibodies, chemically modified antibodies, and synthetic antibody analogs.
55. The method of claim 50, wherein C is a radioactive moiety.
56. The method of claim 55, wherein the radioactive moiety comprises a pharmaceutically acceptable radioactive isotope selected from the group consisting of  $^{123}\text{I}$ ,  $^{125}\text{I}$ ,  $^{131}\text{I}$ ,  $^{90}\text{Y}$ ,  $^{211}\text{At}$ ,  $^{67}\text{Cu}$ ,  $^{186}\text{Re}$ ,  $^{188}\text{Re}$ ,  $^{212}\text{Pb}$ , and  $^{212}\text{Bi}$ .
57. The method of claim 50, wherein C is a chemotoxic moiety.
58. The method of claim 57, wherein the chemotoxic moiety is selected from the group consisting of methotrexate, a pyrimidine analog, a purine analog, a phorbol ester, and butyric acid.
59. The method of claim 50, wherein C is a toxin protein moiety.



60. The method of claim 59, wherein the toxin protein moiety is selected from the group consisting of ricin, abrin, diphtheria toxin, cholera toxin, gelonin, Pseudomonas exotoxin, Shigella toxin, and pokeweed antiviral protein.
61. The method of claim 50, wherein the HGFIN related gene sequence is selected from the group consisting of an HGFIN DNA, cDNA, RNA and HGFIN antisense sequence.
62. The method of claim 50, wherein the compound to be delivered comprises a compound of the general formula  $\alpha$ -HGFIN, wherein  $\alpha$  is one or more moieties that specifically binds to a HGFIN protein and HGFIN is one or more HGFIN related genetic sequences.
63. The method of claim 50, wherein the compound to be delivered comprises a compound of the general formula  $\alpha$ -C, wherein  $\alpha$  is one or more moieties that specifically binds to a HGFIN protein and C is one or more toxic moieties.
64. A compound for the treatment of a lymphoproliferative disease of the general formula  $\alpha$ -HGFIN-C, wherein  $\alpha$  is one or more moieties that specifically binds to a HGFIN protein, HGFIN is one or more HGFIN related genetic sequences, and C is one or more toxic moieties.
65. The compound of claim 64, wherein  $\alpha$  is selected from the group consisting of an antibody and an antibody fragment.
66. The compound of claim 65, wherein the antibody is selected from the group consisting of: monoclonal antibodies, polyclonal antibodies, humanized antibodies, recombinant antibodies, chemically modified antibodies, and synthetic antibody analogs.



67. The compound of claim 65, wherein the antibody fragment is selected from the group consisting of fragments of: monoclonal antibodies, polyclonal antibodies, humanized antibodies, recombinant antibodies, chemically modified antibodies, and synthetic antibody analogs.
68. The compound of claim 64, wherein C is a radioactive moiety.
69. The compound of claim 64, wherein the radioactive moiety comprises a pharmaceutically acceptable radioactive isotope selected from the group consisting of  $^{123}\text{I}$ ,  $^{125}\text{I}$ ,  $^{131}\text{I}$ ,  $^{90}\text{Y}$ ,  $^{211}\text{At}$ ,  $^{67}\text{Cu}$ ,  $^{186}\text{Re}$ ,  $^{188}\text{Re}$ ,  $^{212}\text{Pb}$ , and  $^{212}\text{Bi}$ .
- 70.. The compound of claim 64, wherein C is a chemotoxic moiety.
71. The compound of claim 70, wherein the chemotoxic moiety is selected from the group consisting of methotrexate, a pyrimidine analog, a purine analog, a phorbol ester, and butyric acid.
72. The compound of claim 70, wherein C is a toxin protein moiety.
73. The compound of claim 72, wherein the toxin protein moiety is selected from the group consisting of ricin, abrin, diphtheria toxin, cholera toxin, gelonin, Pseudomonas exotoxin, Shigella toxin, and pokeweed antiviral protein.
74. The compound of claim 64, wherein the HGFN related gene sequence is selected from the group consisting of an HGFN DNA, cDNA, RNA and HGFN antisense sequence.
75. The compound of claim 64, wherein the compound is comprised of the general formula  $\alpha$ -HGFN, wherein  $\alpha$  is one or more moieties that specifically binds to a HGFN protein and HGFN is one or more HGFN related genetic sequences.

76. The compound of claim 75, wherein the one or more HGFIN related genetic sequences is selected from the group consisting of an HGFIN DNA, cDNA, RNA and HGFIN antisense sequence.
77. The compound of claim 64, wherein the compound is comprised of the general formula  $\alpha$ -C, wherein  $\alpha$  is one or more moieites that specifically binds to a HGFIN protein and C is one or more toxic moieties.